

Theory of Medical Gymnastics.

Classification of Movements

1. Active } Resistive.
2. Passive }

Concentric - Both ends of working muscle brought together. Shortening

Isometric - Elongating muscle.

Holdings - Begin. of movement away from c. but
later holding - static.

Voluntary & invol. movements.

ii. Bought about by impulses control of will

rot under

Associated - Reflex - Peristaltic

movement arising involuntarily at
same time as another movement -
usually invol. also.

Effects of Ret. Movements.—

1. Around organs of locomotion.
Blood supply of muscles increase
because nutrient arteries.

Inner edge - outer edge.

Pro. ex. mobility of joint increased esp.

Effects of ex. on circulation - heart's
contraction stronger. Circulation of veins
better. Pressure on deep structure.

Movements alternate lengthening & shortening of axial muscles.

Of one part of body etc. the part
depleting - feet. decrease in blood.
repleting - head

Chest muscles work harder - Increase
size of chest cavity - Effect on
digestive organs. Increase " on
portal system Brain & Nervous
System.

Concussion of knees - Tend & swelling
no ex. Case of where all mov. causes
pain, acute musc. spasm

Patient starting post. chosen with care
Stearness (a) size of base of support
taken into consid. with heavy patients
(B) line of gravity. Directly in
middle.

(C) Amt. of support by gymnast
& apparatus.

Before giving ex., explain fully
position. Gymnast post. comfortable
Gymn. breathe freely, no down patients
neck. All grasps gently but firmly.
Ex. - steady rhythmically, smoothly.
Do not pressed down ST reaches to
fullest extent - more work later.

Choose movements to suit patient - weak, etc.
Rate of no. varied greatly. Not same
schemes of ex.

Rules

1. Those mov. which have direct effect
on pathological effects. changes present.

Must treat whole body.

2. Reaching ex. then & limits.
Movements for head & neck.

1. affecting abdominal organs.

" for chest & back.

2. Limb movements. Finish stretching ex. &
complete relaxation.

Ex.

1. Ex for upper & lower limbs. Choice strength adapted to patients strength. Strong at mov. in middle & dwindle off. Any mov. shouldn't follow, having same effect.

Treatment of scoliosis, etc passive corrective ex. used - followed inward. by act. ex.

8-12 mov. to begin with. In treating scoliosis, etc, ^{1st} mobilizing. - very often by ex. as balance ex - feel. More concentration. P. not feel tired after ex. Possible rest 15 min. after treat.

After P. knows mus. Progress from small to big scheme. Work again gravity.

Standing on toes. ^{1st} More complicated starting post. ^{1st} movement assisted by gymn. More co-ordination later - Change rhythm - Arm & then leg - arm & leg together.

Fundamental post: 1. Standing. Heels to same line, to slightly apart. Shoulders down & back.

2. Kneel standing - P. knees on edge of plinths with toes hanging over. Erect.

3. Sitting - Stool - firmly - ft. on floor flatly toes apart & heels together. Back str. Hands down.

4. Lying - on pillow

5. Hanging -

From these get derived post - same mus. + few others.

(A) Changing post. of legs. i.e. close standing rotating hip joint inward.

Post. received from Standing:

3/ The standing - lifting heels as high off ground as possible. Most leg muscles - effects & uses:-

2. Knee bend or courtesy standing.

This arises by lowering trunk & leg & thigh
form it's with each ^{dorsal} flexion at ankle joint with flexion
at hips & knees. Lowering of trunk caused
by gravity while the working m. control
the mov. by eccentric action after which
we maintain the post. by static

Working ~~Mr.~~ a. calf n.

3. Extensors of knee.

hyp. (esp. Glutei)

Sketches calf m. (little used)

Toe Courtesy Standing -

Combination of 2 previous post. Working m.
4 effects & use all same. sided

of effects & use all same.

Position also good for Double-sided innervation
Treatment for scoliosis.

Walk Standing -

taken by moving 1 ft about 2 lengths
for'd.

Effects & Uses

Base is lengthened in (for'd) sagittal direction - Mostly used in ex-ams raise - double ft.

Stude Handing - Used in active turn
rolling - Wider base. Give working on
a fixed origin on pelvis.

Crook Half Standing -

flex. hip to thigh & trunk
form ~~the~~ ^{muscles working - muscles used in working steady your back.}
Flexors of hip - concentrically then
statically.

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Abdominal M - statically

Back M - body exert.

or you see go ft. ^{hip} supporting side) ^{glutei} ^{leg work}
M. of supporting leg working statically

Uses & Effects - (1) Ex & devel. of all working M.
2. Used as balance ex. 3. If ribs fix - effects respiration.

Step Standing -

Heel of foot to hold ft. in same
pos as when standing. ^{Support standing not}
^{Mus. work.}

Instep - support standing -

Lead leg back & support
leg & instep on stool - ^{Increase effect on}
^{in hip joint}
rectus femoris - ^{into pelvis} ^{forward}
get arches part.

Heel support Standing - ^{place heel on stool}
^{stretch}
^{ischi} ^{peronei} ^{extensors} + everything on back
of leg.

Full out Standing - known as lunge
position - back knee str. Used to treat
Scoliosis - treat patient to use mus. - or
side of convexity. ^{Muscle work - front leg extensors}
^{hip, leg, & knee work again gravity - abductors of hip & take}
^{weight more on one leg}

Ranges or Pairs of Muscle Work.

Mus. may be made to work to its full
range - fully stretched ^{to post} ^{of} fullest
extent contraction. In its inner range -
^{way bet} ^{complete extension & complete}
^{contraction to point} ^{where it is fully contracted (in all M.)}
^{in its outer edge - from midpt. to fullest extension.}
Middle Range - In between inner & outer

When treating weak muscles don't
want to over stretch it. work in mid.
part. If want to lengthen M. use it
in outer range.

Lever - Simple piece of app consisting
of rigid bar by means of which ⁵³⁴
force is applied to overcome certain resist.
^{This force is known as leverage.}

Pt. at which lever moves - fulcrum.
 In h. body this is joint where mov. occurs.
 Force or effort is indicated at pt in
 which the power producing mov. is applied.
 In body this is pt. of attaching working m.
 of the ^{moving} part. The Resist. is weight
 of B¹ lifted. This is centre of gravity of
 moving part.

Levers - 3 classes or order.

I P — F — W.
 Δ

II P — W — F.
 Δ

III W — P — F.
 Δ

The longer the lever arm - distance
 from fulcrum to power - the easier is
 the movement - or less effort needs to
 be exerted - Bletoid has more power
 than supinators.

The long the wt. lever arm i.e. dist
 from fulcrum to wt. - the more difficult
 the mov. or greater effort needs to be exerted.

Axes & Planes -

Mov. may take place around 3
 diff. axis in body - ex -

1. A frontal axis - i.e. - one round an
 imaginary line in the direction of forehead.

2. A sagittal - i.e. - round a line an arrow
 would follow when shot (thus forehead & 1)

3. Longitudinal axis - along a line
 thro' body from head to foot - this may also
 be called vertical.

Mov. may also take place on 3 diff planes -

1. Frontal plane - when a part of body moves on a flat surface // with forehead
2. Sagittal plane - when part moves on a flat surface // with sagittal suture of head
3. Transverse - when part moves on a flat surface - with a + section of body.

When body is in upright position. This plane may be called horizontal.

Trunk bending skw. or fwd - trunk is moved on a sagittal plane - round a frontal axis.

Trunk turning moved on a transverse or horizontal plane round a longitudinal or vertical axis.

Toe Fall Out Standing

Knee position. Same as last but ft. is plantar flexed. When used in treatment of scoliosis back ft. may be crossed over - To tilt pelvis which give more work & m. on 1 side of lumbar region & more stretching of m. on other side of back.

Muscle work - Same m. as previous work except plantar flexors of back ft. instead of dorsal flexors. Hip support & hip lean st. Patient stands in walk standing with support. This is used for trunk side bending.

Thigh Support or Leg Lean St. Patient standing in front of support which is about $\frac{1}{2}$ way bet hips & knees. Used to prevent patient from falling ft. Sometimes used for ex of dt. - plane arm forward. Breathing with it.

Facial Support Standing: Vacuum support - for back arching.

By changing post. of arms wing standing - hands on hips, fingers str. & to gl. & wrist press down. Elbows going str. sideways & shoulders shouldn't be raised.

Bend Standing - fingers on shoulders, elbows tucked in.

Outer rotators of shoulder & supinators of a. & adductors of scapula. Used in some trunk mov. & for starting some arm mov - bending & stretching.

Neck Rest Stand. - Arms raised

elbows & outwardly rotated & fingers
placed around neck. (Poking chin (Bw))


Muscle work - Extensors & adductors of fingers.
Flexors of wrists & elbows.
Adductors & outer rotators of shoulders.
Upward rotators of scap.
Upper back & ant. & post. neck m.


Effects & Uses -


Improves post. of head & back & widens
Thorax (lifts ribs) Used in treatment of
kyphosis.


Head Rest


Forehead Rest Standing - post. part of fingers
on forehead.

Yard Standing - arms sideways raise -
level of shoulder. 

Two hand St - flexion of elbow at chest.
Scap. back. 


Heave standing - 



Reach St - arms forward 

Stretch St - 

Speech " or talk - arms rotating out from ^Rshould.

Crouch St - arm at W.L.'s. Over boom.

$\frac{1}{2}$ wing - $\frac{1}{2}$ head - one sided  - 

$\frac{1}{2}$ bend - $\frac{1}{2}$ stretch -  - 

Crasp - positions reach
stretch
low.

$\frac{1}{2}$ gr. $\frac{1}{2}$ talk.

Refined posit. by chg. posit. of T.

Stp. ST. - bd. inclined fwd. from hips
Plantar fla. of ank. jt. Upper part
of B. strai.

Th. Sup. ST. - Boom or bar 2 sup. ths.

Relaxed Stp. ST. - bd. fwd. of spine. A. hg.
loosely & hips inclined bkwd.

High Sup. Stp. ST. - Combination.

A. lean ST. - C. crosses A. in ft. & leans
on stall bars.

Arch ST. - Lower sh. Arch.

Fall ST. - fall shw. from ank joint.

Side Bend ST. - 2 fl. of T.

Bk lean ST. - P. sh. sup. again wall
7. fwd & hips slight fla.

Turn ST. - 1

Prone fall - 8

Side Ly. - on 1 A & 1 L & stretched others. (taken from prone)

Positions derived from kneeling position.

Str. Kn. - Kn. 9 & 7 1' apart. Ank. Pos D.
flex according to desired result.

1/2 Kn. - P. kns. on 1 kn other bent in ft.

Kn. sitt. - P. kn. & then sits on kls. Kn. either P or D.

By chg. posit. of T

STP Kn. -

STP Kn. Sitt. - same as previous but as now in kno.

Prone Kn. - 4' animal.

ST. Sitt. - On stool with 1' apart + knees.

Close Sitt. - plain.

Ride Sitt. - horse back.

Crk. sitt. - 2

Cross-legged sitt.